MULTI-STEP BIDDING PROCESS
FOR
CONTRACTORS

Request For Solicitation For Construction Services

Stage II – Roofing Contractors Bidders List

July 11, 2006

ROOFING IMPROVEMENTS NELSON FIELDHOUSE

UTAH STATE UNIVERSITY
LOGAN, UTAH

DFCM Project No. 06028770

Tracy Stocking & Associates

TABLE OF CONTENTS

Current copies of the following documents are hereby made part of these contract documents by reference. These documents are available on the DFCM web site at http://dfcm.utah.gov or are available upon request from DFCM:

DFCM General Conditions dated May 25, 2005
DFCM Application and Certificate for Payment dated May 25, 2005

Technical Specifications:
Drawings:

The Agreement and General Conditions dated May 25, 2005 have been updated from versions that were formally adopted and in use prior to this date. The changes made to the General Conditions are identified in a document entitled Revisions to General Conditions that is available on DFCM's web site at http://dfcm.utah.gov

INVITATION TO BID

ONLY FIRMS PRE-QUALIFIED DURING STAGE I OF THE RFS ARE ALLOWED TO BID ON THIS PROJECT

The State of Utah - Division of Facilities Construction and Management (DFCM) is requesting bids for the construction of the following project:

ROOFING IMPROVEMENTS – NELSON FIELDHOUSE
UTAH STATE UNIVERSITY – LOGAN, UTAH
PROJECT NO: 06028770

Project Description: Remove aluminum shingles on approximately 40,000 sq. ft. and replace with 40-year laminated shingles. Also install EPDM in drainage areas of about 2380 sq. ft. Construction Cost Estimate: $112,000.00

FIRM NAME	POINT OF CONTACT	PHONE	FAX
Capitol Roofing Service	Stewart B. Paulsen	(801) 562-5568	(801) 562-1159
Clark's Quality Roofing	Perry Clark	(801) 266-3575	(801) 266-3692
Collins Roofing, Inc.	Douglas Collins	(801) 224-0361	(801) 224-0361
Contract West Roofing, Inc.	Craig Peters	(801) 943-2427	(801) 943-0257
Conwest, Inc.	Phil Scarborough	(801) 553-0640	(815) 550-1136
Dave Atkinson Roofing, Inc.	Dave Atkinson	(435) 770-4299	(435) 258-2225
Island Heights Construction, Inc.	Terry Cronquist	(435) 753-7403	(435) 753-7452
Kendrick Brothers Roofing, Inc.	Brad L. Kendrick	(801) 731-2000	(801) 731-2020
Nielco Roofing and Sheet Metal, Inc.	Gary Nielson	(801) 263-0444	(801) 263-0485
Redd Roofing Company	K. Frank Redd	(801) 621-1363	(801) 621-1540
Summit Roofing & Waterproofing	Phil Whiting	(801) 529-2596	(801) 732-2186
Superior Roofing and Sheet Metal, Inc	Blake Redd	(801) 266-1473	(801) 266-1522
Utah Tile and Roofing, Inc.	Paul Seppi	(801) 266-9694	(801) 266-6836
Utah Western Roofing	Scott Laufenberg	(801) 294-6154	(801) 294-6155

The bid documents will be available at 10:00 AM on Tuesday, July 11, 2006 in electronic format from DFCM at 4110 State Office Building, Salt Lake City, Utah 84114, telephone (801)538-3018 and on the DFCM web page at http://dfcm.utah.gov. For questions regarding this project, please contact Darrell Hunting, Project Manager, DFCM, at (801)538-9617. No others are to be contacted regarding this project. A **MANDATORY** pre-bid meeting and site visit will be held at 10:00 AM on Tuesday, July 18, 2006 at the Nelson Field House, Utah State University, 700 North 800 East, Logan, Utah (see map). All pre-qualified prime contractors wishing to bid on this project must attend this meeting.

Bids must be submitted by 2:30 PM on Thursday, July 27, 2006 to DFCM, 4110 State Office Building, Salt Lake City, Utah 84114. Bids will be opened and read aloud in the DFCM Conference Room, 4110 State Office Building, Salt Lake City, Utah. Note: Bids must be received at 4110 State Office Building by the specified time. The contractor shall comply with and require all of its subcontractors to comply with the license laws as required by the State of Utah.

A bid bond in the amount of five percent (5%) of the bid amount, made payable to the Division of Facilities Construction and Management on DFCM's bid bond form, shall accompany the bid.

The Division of Facilities Construction & Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of the State.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
MARLA WORKMAN, CONTRACT COORDINATOR
4110 State Office Bldg., Salt Lake City, Utah 84114

STAGE II - MULTI-STEP BIDDING PROCESS

ONLY FIRMS PRE-QUALIFIED DURING STAGE I OF THE RFS ARE ALLOWED TO BID ON THIS PROJECT

1. Invitational Bid Procedures

The following is an overview of the invitational bid process. More detailed information is contained throughout the document. Contractors are responsible for reading and complying with all information contained in this document.

Notification: DFCM will notify each registered pre-qualified firm (via fax or e-mail) when a project is ready for Construction Services and invite them to bid on the project.

Description of Work: A description of work or plans/specifications will be given to each contractor. If required, the plans and specifications will be available on the DFCM web page at http://dfcm.utah.gov and on CDs from DFCM, at 4110 State Office Building, Salt Lake City, Utah 84114.

Schedule: The Stage II Schedule shows critical dates including the mandatory pre-bid site meeting (if required), the question and answer period, the bid submittal deadline, the subcontractor list submittal deadline, etc. Contractors are responsible for meeting all deadlines shown on the schedule.

Mandatory Pre-Bid Site Meeting: If a firm fails to attend a pre-bid site meeting labeled "Mandatory" they will not be allowed to bid on the project. At the mandatory meeting, contractors may have an opportunity to inspect the site, receive additional instructions and ask questions about project. The schedule contains information on the date, time, and place of the mandatory pre-bid site meeting.

Written Questions: All questions must be in writing and directed to DFCM's project manager assigned to this project. No others are to be contacted regarding this project. The schedule contains information on the deadline for submitting questions.

Addendum: All clarifications from DFCM will be in writing and issued as an addendum to the RFS. Addenda will be posted on DFCM's web site at http://dfcm.utah.gov. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda may result in disqualification from bidding.

Submitting Bids: Bids must be submitted to DFCM 4110 State Office Building, Salt Lake City, Utah 84114 by the deadline indicated on the schedule. Bids submitted after the deadline will not be accepted. Bids will be opened at DFCM on the date, time, and place indicated on the schedule.

Subcontractors List: The firm selected for the project must submit a list of all subcontractors by the deadline indicated on the schedule contained in this document.

Pre-qualified List of Contractors: Contractors shall remain on DFCM's list of pre-qualified contractors provided: (a) they maintain a performance rating of 4 or greater on each project, (b) they are not suspended for failure to comply with requirements of their contract, (c) the firm has not undergone a significant reorganization involving the loss of key personnel (site superintendents, project managers, owners, etc.) to a degree such that the firm no longer meets the pre-qualification requirements outlined in Stage I, (d) the financial viability of the firm has not significantly changed, and (e) the firm is not otherwise disqualified by DFCM. Note: If a contractor fails to comply with items (a) through (e) above, they may be removed from DFCM's list of pre-qualified contractors following an evaluation by a review committee. Contractors will be given the opportunity to address the review committee before a decision is made. Pre-qualified contractors are ONLY authorized to bid on projects within the discipline that they were originally pre-qualified under.

2. Drawings and Specifications and Interpretations

Drawings, specifications and other contract documents may be obtained as stated in the Invitation to Bid. If any firm is in doubt as to the meaning or interpretation of any part of the drawings, specifications, scope of work or contract documents, they shall submit, in writing, a request for interpretation to the authorized DFCM representative by the deadline identified in the schedule. Answers to questions and interpretations will be made via addenda issued by DFCM. Neither DFCM or the designer shall be responsible for incorrect information obtained by contractors from sources other than the official drawings/specifications and addenda issued by DFCM.

3. Product Approvals

Where reference is made to one or more proprietary products in the contract documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the contract documents, the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the drawings and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the Designer. Such written approval must occur prior to the deadline established for the last scheduled addendum to be issued. The Designer's written approval will be included as part of the addendum issued by DFCM. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the Designer.

4. Addenda

All clarifications from DFCM will be in writing and issued as an addendum to the RFS. Addenda will be posted on DFCM's web site at http://dfcm.utah.gov. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda shall result in disqualification from bidding. DFCM shall not be responsible for incorrect information obtained by contractors from sources other than official addenda issued by DFCM.

5. Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors

Contractors shall respond promptly to any inquiry in writing by DFCM to any concern of financial responsibility of the Contractor, Subcontractor or Sub-subcontractor. Failure to respond may result in suspension from DFCM's list of pre-qualified contractors.

6. Licensure

The Contractor shall comply with and require all of its Subcontractors to comply with the license laws as required by the State of Utah.

7. Time is of the Essence

Time is of the essence in regard to all the requirements of the contract documents.

8. Bids

Before submitting a bid, each bidder shall carefully examine the contract documents; shall visit the site of the work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the contract documents including those added via addenda. If the bidder observes that portions of the contract documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Project Manager prior to the bidding deadline. Changes necessary to correct these issues will be made via addenda issued by DFCM.

The bid, bearing original signatures, must be typed or handwritten in ink on the Bid Form provided in the procurement documents and submitted in a sealed envelope at the location specified by the Invitation to Bid prior to the published deadline for the submission of bids.

Bid bond security, in the amount of five percent (5%) of the bid, made payable to the Division of Facilities Construction and Management, shall accompany bid. THE BID BOND MUST BE ON THE BID BOND FORM PROVIDED IN THE PROCUREMENT DOCUMENTS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID.

If the bid bond security is submitted on a form other than DFCM's required bid bond form, and the bid security meets all other legal requirements, the bidder will be allowed to provide an acceptable bid bond by the close of business on the next business day following notification by DFCM of submission of a defective bid bond security. **A cashier's check cannot be used as a substitute for a bid bond.**

9. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the "Instructions and Subcontractor's List Form", included as part of the contract documents. The subcontractors list shall be delivered to DFCM or faxed to DFCM at (801)538-3677 within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the contract documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements may be suspended from DFCM's list of pre-qualified contractors.

10. Contract and Bond

The Contractor's Agreement will be in the form provided in this document. The duration of the contract shall be for the time indicated by the project completion deadline shown on the schedule. The successful bidder, simultaneously with the execution of the Contractor's Agreement, will be required to furnish a performance bond and a payment bond, both bearing original signatures, upon the forms provided in the procurement documents. The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the Contract Sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for Subcontractors will be specified in the Supplementary General Conditions.

11. Award of Contract

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is reasonable, is in the interests of DFCM to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc. Alternates will be selected in prioritized order up to the construction cost estimate.

12. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

13. Withdrawal of Bids

Bids may be withdrawn on written request received from bidders within 24 hours after the bid opening if the contractor has made an error in preparing the bid.

14. DFCM Contractor Performance Rating

As a contractor completes each project, DFCM will evaluate project performance based on the enclosed "DFCM Contractor Performance Rating" form. The ratings issued on this project may affect the firm's "pre-qualified" status and their ability to obtain future work with DFCM.

Stage II
PROJECT SCHEDULE

PROJECT NAME:	**ROOFING IMPROVEMENTS – NELSON FIELDHOUSE UTAH STATE UNIVERSITY – LOGAN, UTAH**
DFCM PROJECT #	**06028770**

Event	Day	Date	Time	Place
Stage II Bidding Documents Available	Tuesday	July 11, 2006	10:00 AM	DFCM 4110 State Office Building SLC, UT and DFCM web site*
Mandatory Pre-Bid Site Meeting	Tuesday	July 18, 2006	10:00 AM	Nelson Fieldhouse Utah State University 700 North 800 East Logan, UT (See Map)
Deadline for Submitting Questions	Friday	July 21, 2006	4:00 PM	DFCM 4110 State Office Building SLC, UT
Final Addendum Issued	Tuesday	July 25, 2006	4:00 PM	DFCM web site*
Prime Contractors Turn in Bid and Bid Bond / Bid Opening in DFCM Conference Room	Thursday	July 27, 2006	2:30 PM	DFCM 4110 State Office Building SLC, UT
Subcontractors List Due	Friday	July 28, 2006	2:30 PM	DFCM 4110 State Office Building SLC, UT
Project Completion Deadline	Friday	December 1, 2006	3:00 PM	Project Site

* DFCM's web site address is http://dfcm.utah.gov

BID FORM

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Notice to Contractors" and in accordance with the Request for Bids for the **ROOFING IMPROVEMENTS – NELSON FIELDHOUSE – UTAH STATE UNIVERSITY- LOGAN , UTAH - DFCM PROJECT NO. 06028770** and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

_____ DOLLARS ($_____)
(In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete by **December 1, 2006**, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **$200.00** per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract. The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable l00% Performance and Payment bonds are not delivered within time set forth.

Type of Organization: _____
(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

_____

Respectfully submitted,

_____
Name of Bidder

ADDRESS:

_____

_____

_____
Authorized Signature

BID BOND

(Title 63, Chapter 56, U. C. A. l953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed, (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the STATE OF UTAH, hereinafter referred to as the "Obligee," in the amount of $_____ (5% of the accompanying bid), being the sum of this Bond to which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted to Obligee the accompanying bid incorporated by reference herein, dated as shown, to enter into a contract in writing for the _____ _____ Project.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal does not execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the principal, then the sum of the amount stated above will be forfeited to the State of Utah as liquidated damages and not as a penalty; if the said principal shall execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void. It is expressly understood and agreed that the liability of the Surety for any and all defaults of the Principal hereunder shall be the full penal sum of this Bond. The Surety, for value received, hereby stipulates and agrees that obligations of the Surety under this Bond shall be for a term of sixty (60) days from actual date of the bid opening.

PROVIDED, HOWEVER, that this Bond is executed pursuant to provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated below, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DATED this _____ day of _____, 20_____ .

Principal's name and address (if other than a corporation):

_____

_____

By: _____

Title: _____

Principal's name and address (if a corporation):

_____

_____

By: _____

Title: _____

(Affix Corporate Seal)

Surety's name and address:

_____

_____

STATE OF _____)
) ss.
COUNTY OF _____)

By: _____
Attorney-in-Fact (Affix Corporate Seal)

On this ____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.
My Commission Expires: _____
Resides at: _____

_____
NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

INSTRUCTION AND SUBCONTRACTORS LIST FORM

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, on the following basis:

PROJECTS UNDER $500,000 - ALL SUBS $20,000 OR OVER MUST BE LISTED
PROJECTS $500,000 OR MORE - ALL SUBS $35,000 OR OVER MUST BE LISTED

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- Bidder must list "Self" if performing work itself.

LICENSURE:

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

BIDDER LISTING 'SELF' AS PERFORMING THE WORK:

Any bidder that is properly licensed for the particular work and intends to perform that work itself in lieu of a subcontractor that would otherwise be required to be on the subcontractor list, must insert the term 'Self' for that category on the subcontractor list form. Any listing of 'Self' on the sublist form shall also include the amount allocated for that work.

'SPECIAL EXCEPTION':

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A.Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

GROUNDS FOR DISQUALIFICATION:

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for such other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

(1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
(2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
(3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
(4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
(5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
(6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

EXAMPLE:

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #
ELECTRICAL	ABCD Electric Inc.	$350,000.00	123456789000
LANDSCAPING	"Self"	300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: 350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS SUBCONTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.

STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

SUBCONTRACTORS LIST
FAX TO 801-538-3677

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #

We certify that:

l. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed "Self" or "Special Exception" in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: _____

DATE: _____ SIGNED BY: _____

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR DFCMS REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY DFCM. ATTACH A SECOND PAGE IF NECESSARY.

FUGITIVE DUST PLAN

The Contractor will fill out the form and file the original with the Division of Air Quality and a copy of the form with the Division of Facilities Construction & Management, prior to the issuance of any notice to proceed.

The Contractor will be fully responsible for compliance with the Fugitive Dust Control Plan, including the adequacy of the plan, any damages, fines, liability, and penalty or other action that results from noncompliance.

Utah Division of Air Quality
April 20, 1999

GUIDANCE THAT MUST BE CONSIDERED IN DEVELOPING AND SUBMITTING A DUST CONTROL PLAN FOR COMPLIANCE WITH R307-309-3, 4, 5, 6, 7

Source Information:

1. Name of your operation (source): provide a name if the source is a construction site.

2. Address or location of your operation or construction site.

3. UTM coordinates or Longitude/Latitude of stationary emission points at your operation.

4. Lengths of the project, if temporary (time period).

5. Description of process (include all sources of dust and fugitive dust). Please, if necessary, use additional sheets of paper for this description. Be sure to mark it as an attachment.

6. Type of material processed or disturbed.

7. Amount of material processed (tons per year, tons per month, lbs./hr., and applicable units).

8. Destination of product (where will the material produced be used or transported, be specific, provide address or specific location), information needed for temporary relocation applicants.

9. Identify the individual who is responsible for the implementation and maintenance of fugitive dust control measures. List name(s), position(s) and telephone number(s).

10. List, and attach copies of any contract lease, liability agreement with other companies that may, or will, be responsible for dust control on site or on the project.

Description of Fugitive Dust Emission Activities
(Things to consider in addressing fugitive dust control strategies.)

1. Type of activities (drilling and blasting, road construction, development construction, earth moving and excavation, handling and hauling materials, cleaning and leveling, etc).

2. List type of equipment generating the fugitive dust.

3. Diagram the location of each activity or piece of equipment on site. Please attach the diagram.

4. Provide pictures or drawings of each activity. Include a drawing of the unpaved/paved road network used to move loads "on" and "off" property.

5. Vehicle miles travels on unpaved roads associated with the activity (average speed).

6. Type of dust emitted at each source (coal, cement, sand, soil, clay, dust, etc.)

7. Estimate the size of the release area at which the activity occurs (square miles). For haul or dirt roads include total miles of road in use during the activity.

Description of Fugitive Dust Emission Controls on Site

Control strategies must be designed to meet 20% opacity or less on site (a lesser opacity may be defined by Approval Order conditions or federal requirements such as NSPS), and control strategies must prevent exceeding 10% opacity from fugitive dust at the property boundary (site boundary) for compliance with R307-309-3.

1. Types of ongoing emission controls proposed for each activity, each piece of equipment, and haul roads.

2. Types of additional dust controls proposed for bare, exposed surfaces (chemical stabilization, synthetic cover, wind breaks, vegetative cover, etc).

3. Method of application of dust suppressant.

4. Frequency of application of dust suppressant.

5. Explain what triggers the use of a special control measure other than routine measures already in place, such as covered loads or measures covered by a permit condition (increase in opacity, high winds, citizen complaints, dry conditions, etc).

6. Explain in detail what control strategies/measures will be implemented off-hours, i.e., Saturdays/Sundays/Holidays, as well as 6 PM to 6 AM each day.

Description of Fugitive Dust Control Off-site

Prevent, to the maximum extent possible, deposition of materials, which may create fugitive dust on public and private paved roads in compliance with R307-309-5, 6, 7.

1. Types of emission controls initiated by your operation that are in place "off" property (application of water, covered loads, sweeping roads, vehicle cleaning, etc.).

2. Proposed remedial controls that will be initiated promptly if materials, which may create fugitive dust, are deposited on public and private paved roads.

Submit the Dust Control Plan to:

Executive Secretary
Utah Air Quality Board
POB 144820
15 North 1950 West
Salt Lake City, Utah 84114-4820

Phone: (801) 536-4000
FAX: (801) 536-4099

Fugitive Dust Control Plan Violation Report

When a source is found in violation of R307-309-3 or in violation of the Fugitive Dust Control Plan, the course must submit a report to the Executive Secretary within 15 days after receiving a Notice of Violation. The report must include the following information:

1. Name and address of dust source.

2. Time and duration of dust episode.

3. Meteorological conditions during the dust episode.

4. Total number and type of fugitive dust activities and dust producing equipment within each operation boundary. If no change has occurred from the existing dust control plan, the source should state that the activity/equipment is the same.

5. Fugitive dust activities or dust producing equipment that caused a violation of R-307-309-3 or the sources dust control plan.

6. Reasons for failing to control dust from the dust generating activity or equipment.

7. New and/or additional fugitive dust control strategies necessary to achieve compliance with R307-309-3, 4, 5, 6, or 7.

8. If it can not be demonstrated that the current approved Dust Control Plan can result in compliance with R307-309-3 through 7, the Dust Control Plan must be revised so as to demonstrate compliance with 307-309-3 through 7. Within 30 days of receiving a fugitive dust Notice of Violation, the source must submit the revised Plan to the Executive Secretary for review and approval.

Submit the Dust Control Plan to:

Executive Secretary
Utah Air Quality Board
POB 144820
15 North 1950 West
Salt Lake City, Utah 84114-4820

Phone: (801) 536-4000
FAX: (801) 536-4099

Attachments: DFCM Form FDR R-307-309, Rule 307-309

CONTRACTOR'S AGREEMENT

FOR:

_____
_____
_____

THIS CONTRACTOR'S AGREEMENT, made and entered into this ____ day of _____, 20__, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and _____, incorporated in the State of _____ and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is _____.

WITNESSETH: WHEREAS, DFCM intends to have Work performed at _____ _____.

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Work to be performed shall be in accordance with the Contract Documents prepared by _____ and entitled "_____."

The DFCM General Conditions ("General Conditions") dated May 25, 2005 on file at the office of DFCM and available on the DFCM website, are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

ARTICLE 2. CONTRACT SUM. The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of _____ _____ DOLLARS AND NO CENTS ($_____.00), which is the base bid, and which sum also includes the cost of a 100%

Performance Bond and a 100% Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY. The Work shall be Substantially Complete within _____ (___) calendar days after the date of the Notice to Proceed. Contractor agrees to pay liquidated damages in the amount of $_____ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Notice to Contractors, Instructions to Bidders/Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

ARTICLE 5. PAYMENT. The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the

Contractor requests payment and agrees to safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

ARTICLE 6. INDEBTEDNESS. Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

ARTICLE 7. ADDITIONAL WORK. It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

ARTICLE 8. INSPECTIONS. The Work shall be inspected for acceptance in accordance with the General Conditions.

ARTICLE 9. DISPUTES. Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT. This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF. The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

ARTICLE 12. INDEMNIFICATION. The Contractor shall comply with the indemnification provisions of the General Conditions.

ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT. The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor's Agreement. The Contractor shall not assign this Contractor's Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor's Agreement, without prior written consent of the DFCM.

ARTICLE 14. RELATIONSHIP OF THE PARTIES. The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT. Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

ARTICLE 16. ATTORNEY FEES AND COSTS. Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.

IN WITNESS WHEREOF, the parties hereto have executed this Contractor's Agreement on the day and year stated hereinabove.

CONTRACTOR: _____

_____
Signature Date

Title: _____

State of _____)
)
County of _____) _____
Please type/print name clearly

On this ____ day of _____, 20____, personally appeared before me, _____, whose identity is personally known to me (or proved to me on the basis of satisfactory evidence) and who by me duly sworn (or affirmed), did say that he (she) is the _____ (title or office) of the firm and that said document was signed by him (her) in behalf of said firm.

_____
Notary Public

(SEAL)

My Commission Expires _____

APPROVED AS TO AVAILABILITY OF FUNDS:

_____
Financial Manager, Date
Division of Facilities Construction and Management

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

_____
_____ Date
Manager -
Capital _____

APPROVED AS TO FORM:
ATTORNEY GENERAL
May 25, 2005
By: Alan S. Bachman
Asst Attorney General

APPROVED FOR EXPENDITURE:

_____
Division of Finance Date

PERFORMANCE BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That _____ hereinafter referred to as the "Principal" and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee, " in the amount of _____ _____ DOLLARS ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____, for the approximate sum of _____ _____ Dollars ($_____), which Contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the state named herein or the heirs, executors, administrators or successors of the Owner.

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20_____.

WITNESS OR ATTESTATION:

_____

PRINCIPAL:

_____

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

_____

SURETY:

_____

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)

) ss.

COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My commission expires: _____

Resides at: _____

_____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

PAYMENT BOND

(Title 63, Chapter 56, U. C. A. l953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____ _____, a corporation organized and existing under the laws of the State of _____authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of _____, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of _____ Dollars ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____ for the approximate sum of _____ _____ Dollars ($_____), which contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, l953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

_____

PRINCIPAL:

_____

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

_____

SURETY:

_____

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____ _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My commission expires: _____

Resides at: _____

_____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

CHANGE ORDER #_____

CONTRACTOR:

ARCHITECT:

AGENCY OR INSTITUTION:
PROJECT NAME:
PROJECT NUMBER:
CONTRACT NUMBER:
DATE:

CONSTRUCTION CHANGE DIRECTIVE NO.	PROPOSAL REQUEST NO.	AMOUNT		DAYS	
		INCREASE	DECREASE	INCREASE	DECREASE

	Amount	Days	Date
ORIGINAL CONTRACT			
TOTAL PREVIOUS CHANGE ORDERS			
TOTAL THIS CHANGE ORDER			
ADJUSTED CONTRACT			

DFCM and Contractor agree that the terms, contract sum, scope of the Work and time specified in this Change Order shall constitute the full accord and satisfaction, and complete adjustment to the Contract and includes all direct and indirect costs and effects related to, incidental to, and/or reasonably implied from such change in the contract terms, sum, scope of the Work and time.

Contractor:_____
Date

Architect/Engineer:_____
Date

Agency or Institution:_____
Date

DFCM: _____
Date

Funding Verification:_____
Date

Page _____ of _____page(s)

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT _____ PROJECT NO: _____

AGENCY/INSTITUTION _____

AREA ACCEPTED _____

The Work performed under the subject Contract has been reviewed on this date and found to be Substantially Completed as defined in the General Conditions; including that the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the State of Utah can occupy the Project or specified area of the Project for the use for which it is intended.

The DFCM - (Owner) accepts the Project or specified area of the Project as Substantially Complete and will assume full possession of the Project or specified area of the Project at _____ (time) on _____ (date).

The DFCM accepts the Project for occupancy and agrees to assume full responsibility for maintenance and operation, including utilities and insurance, of the Project subject to the itemized responsibilities and/or exceptions noted below:

_____

_____

The Owner acknowledges receipt of the following closeout and transition materials:

☐ Record Drawings ☐ O & M Manuals ☐ Warranty Documents ☐ Completion of Training Requirements

A list of items to be completed or corrected (Punch List) is attached hereto. The failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents, including authorized changes thereof. The amount of_____. (Twice the value of the punch list work) shall be retained to assure the completion of the punch list work.

The Contractor shall complete or correct the Work on the list of (Punch List) items appended hereto within _____ ____calendar days from the above date of issuance of this Certificate. If the list of items is not completed within the time allotted the Owner has the right to be compensated for the delays and/or complete the work with the help of independent contractor at the expense of the retained project funds. If the retained project funds are insufficient to cover the delay/completion damages, the Owner shall be promptly reimbursed for the balance of the funds needed to compensate the Owner.

_____ by: _____

CONTRACTOR (include name of firm) (Signature) DATE

_____ by: _____

A/E (include name of firm) (Signature) DATE

_____ by: _____

USING INSTITUTION OR AGENCY (Signature) DATE

_____ by: _____

DFCM (Owner) (Signature) DATE

4110 State Office Building, Salt Lake City, Utah 84114
telephone 801-538-3018 • facsimile 801-538-3267 • http://dfcm.utah.gov

cc: Parties Noted
DFCM, Director

SPECIFICATIONS

END OF TABLE OF CONTENTS

SECTION 07312

FIBERGLASS-REINFORCED SHINGLES

PART 1 - GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:
   1. Furnish and install roofing system as described in Contract Documents.

B. Products Installed But Not Supplied Under This Section:
   1. Roof flashing.

C. Related Sections:
   1. Section 07631: Roof flashing and drip edge.

1.2 REFERENCES

A. American Society For Testing And Materials:
   1. ASTM D 226-97a, 'Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.'
   2. ASTM D 3018-00, 'Standard Specification for Class 'A' Asphalt Shingles Surfaced with Mineral Granules.'
   3. ASTM D 3462-00, 'Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.'
   4. ASTM D 4586-00, 'Standard Specification for Asphalt Roof Cement, Asbestos-Free.'

1.3 SYSTEM DESCRIPTION

A. Design Requirements: This specification sets minimum standards for materials and workmanship. Manufacturer's warranty requirements or governing building codes shall apply where they impose higher standards.

1.4 SUBMITTALS

A. Product Data:
   1. Manufacturer's literature or cut sheet for each component of system.
   2. Color and style selection.
   3. Manufacturer's installation instructions and details for installation of secondary underlayment at penetrations, dormers, eaves, rakes, etc, to fit environmental conditions at Project.

B. Samples: Full size shingle.

1.5 QUALITY ASSURANCE

A. Pre-Installation Conference: Schedule pre-installation conference after installation of sheathing but before installation of any roofing system component.

1.6 PROJECT CONDITIONS

A. Project Environmental Requirements: Do not install shingles at lower temperatures than allowed by Manufacturer for application.

1.7 SEQUENCING

A. Install valley secondary underlayment, valley primary underlayment, and valley metal after installation of general secondary underlayment, but before installation of general primary underlayment.

1.8 WARRANTY

A. Special Warranty:
   1. Shingle Manufacturer's special 40 year minimum labor and material warranty including but not limited to:
      a. First 5 years minimum of warranty will provide for full replacement cost, including tear-off and disposal, for any failure, including material defects and workmanship. Remaining 35 years of warranty will provide for pro-rated replacement cost.
      b. Roofing system will resist blow-offs in winds up to 110 mph for 5 years when installed as specified below.
   2. Algae resistance for 10 years.

B. Contractor Workmanship Warranty:
   1. 5-years on DFCM contractor warranty form.

1.9 MAINTENANCE

A. Extra Materials: Provide one square minimum of bundled shingles for Owner's future use.

PART 2 - PRODUCTS

2.1 COMPONENTS

A. Shingles And Underlayment:
   1. Fiberglass mat shingles meeting or exceeding requirements of ASTM D 3018, Type I and UL Class A. Meet requirements of ASTM D 3462 where required by local codes.
      a. Integral algae resistance.
      b. Color as selected by Architect from Manufacturer's full color line.
   2. Approved Products And Manufacturers:
      a. CertainTeed Roofing Products, Valley Forge, PA.
         1) Shingles:
            a) High Wind: Hatteras / Landmark TL
         2) Hip And Ridge Shingles: Shadow Ridge or Laminate Accessory.
         3) Primary Underlayment Under Shingles: CertainTeed 30 lb felt, Roofers' Select, or UL approved product meeting requirements of ASTM D 226.
         4) Secondary Underlayment Under Shingles: WinterGuard Granular or WinterGuard Sand
      b. GAF Materials Corp, Wayne, NJ.
         1) Shingles:
            a) High Wind: Slateline.
         2) Hip And Ridge Shingles: TimberTex or PacificRidge as required by GAF for shingle used.
         3) Primary Underlayment Under Shingles: Leatherback ASTM 30 Felt or Shinglemate.

4) Secondary Underlayment Under Shingles: Weatherwatch or Stormguard.

c. Tamko Roofing Products
   1) Shingles:
      a) High Wind: Heritage 50
   2) Hip And Ridge Shingles: Heritage 50 Hip and Ridge
   3) Primary Underlayment Under Shingles: No. 30 ASTM Felt.
      Secondary Underlayment Under Shingles: Moisture Guard Plus

d. Owens Corning
   1) Shingles:
      a) High Wind: Oakridge Pro 50 Deep Shadow
   2) Hip And Ridge Shingles: High Ridge Hip and Ridge
   3) Primary Underlayment Under Shingles: No. 30 ASTM Felt.
   4) Secondary Underlayment Under Shingles: WeatherLock Poly-Surfaced Underlayment

B. Fasteners:
   1. Primary Underlayment:
      a. Corrosion resistant roofing nails with one inch diameter head and 3/4 inch long shank minimum.
         1) If shingles applied as underlayment is laid, use metal or plastic head Simplex nails or one inch long shingle roofing nails.
         2) If shingles not applied as underlayment is laid, use plastic head only.
   2. Shingles:
      a. Eleven ga hot-dipped galvanized roofing nails with 3/8 inch 9.5 mm nominal diameter head and of sufficient length to penetrate through roof sheathing 1/4 inch 6 mm or 3/4 inch 19 mm minimum into solid wood decking.
      b. Coil type non-corrosive gun-driven nails of same size as hand-driven nails are acceptable.
      c. Staples not permitted.

C. Asphalt Roofing Cement: Any manufacturer's product meeting requirements of ASTM D 4586 and acceptable to Shingle Manufacturer.

PART 3 - EXECUTION

3.1 INSTALLERS

1. Installers shall have 10 years minimum experience in commercial shingle roofing installation.

3.2 EXAMINATION

A. Examine deck to determine if it is satisfactory for installation of roofing system. Conditions include, but are not limited to, moisture on deck, protruding deck fasteners, specified gaps between sheathing, and other items affecting issuance of roofing warranty. Report unsatisfactory conditions in writing to Architect.

3.3 PREPARATION

A. Clean roof sheathing, including removal of dirt and debris, before installation of underlayment.

3.4 INSTALLATION

A. Underlayment:
   1. General:

a. Do not use permanent underlayment installation as temporary roof. If temporary roof is used, remove completely before installation of permanent underlayment.
b. Follow Roofing Manufacturer's recommendations for installation of primary and secondary underlayment, particularly at eaves, rakes, and penetrations, unless specified installation procedures and Drawing details are more stringent.
c. Secondary underlayment: do not leave underlayment exposed to weather more than 14 days after beginning of underlayment installation. If underlayment is exposed for more than 14 days after beginning of underlayment installation, treat as temporary roof under first paragraph above. If moisture is deposited on exposed underlayment, obtain written approval from Manufacturer's Representative before installing shingles.

2. Secondary:
   a. Under Shingles:
      1) Lap end joints 6 inches and side joints 3 inches minimum.
      2) Apply continuous 12 inch wide strip at edge of eaves and rakes before installing drip edge.
      3) Apply two 36 inch 900 mm wide courses along eaves and rakes as described in Contract Documents with first course overlapping drip edge and 12 inch 300 mm wide previously applied strip.

3. Valleys:
   a. Apply three continuous 36 inch 900 mm wide sheets of secondary underlayment in valley lapped so as to provide 8 foot 6 inch 2 590 mm wide covered area centered over valley.
   b. Install one continuous 36 inch 300 mm wide strip of primary underlayment atop secondary underlayment and centered over valley.
   c. Install formed valley metal over strip of primary underlayment. Nail top of each section and lap 8 inches 200 mm in direction of flow. Seal laps with asphalt roofing cement. Secure edges of valley metal with fasteners spaced at 12 inches 300 mm maximum on center and approximately 1/2 inch 12 mm in from edge of metal.
   d. Install 12 inch 300 mm wide strips of secondary underlayment lapping nailed edge of formed valley metal 3 inches 75 mm.
4. Primary:
   a. Apply 36 inch 900 mm wide courses over complete deck, including areas covered with secondary underlayment unless specified otherwise. Maintain end laps of 8 inches 200 mm and side laps of 19 inches 475 mm. Stop primary underlayment between 3 and 6 inches 75 and 150 mm of inside edge of strip of secondary underlayment installed over edge of formed valley metal.
   b. Nailing:
      1) Secure primary underlayment to deck with roofing nails one inch 25 mm if from edge and 18 inches 450 mm on center.
      2) Do not nail through metal flashing, except drip edge, when installing primary underlayment.

B. Shingles:
1. Before installing shingles, inspect underlayment and metal installation with Architect and Owner. Correct improperly installed and damaged material before beginning shingle installation.
2. Cut starter strip shingles on slotted end to 9 inch 225 mm width. Nail to eave granule side up in continuous mastic bed with slot end down-slope and edge overhanging eave 3/8 inch 9 mm so sealing tabs are at edge of eave. Install shingles with maximum exposure recommended by Manufacturer. Lay first course directly over starter strip with ends flush with starter strip at eaves and so joints in starter strip are offset 4 inches 100 mm minimum from joints in first course.
3. Insure alignment by snapping chalk line at least each fifth course to control horizontal alignment.
4. Lay shingles so end joints are offset in accordance with Manufacturer's installation procedures.
5. Except over formed valley metal, use 6 nails in each shingle placed as required by Shingle Manufacturer. Place nails one inch from each end of strip and remainder evenly spaced between. Should any nail fail to penetrate sheathing by 1/4 inch 6 mm minimum, drive additional nail nearby. Adjust nail gun pressure for nailing flush and tight to deck without cutting shingle surface. Over valley metal, hand seal shingles. Do not drive nails through valley metal. Drive nails perpendicular to shingle surface so nail head is flat against shingle.

6. Run chalk line so valley metal will be exposed 6 inches 150 mm wide at top and diverge 3/32 inch one mm per ft down to eaves. Neatly trim shingles to this line.
7. Install specified hip and ridge shingles in accordance with Shingle Manufacturer's instructions. Run ridge shingles as directed by Architect.
8. Vent pipe sleeve flange minimum width 6 inches 150 mm. Fit shingles under lower edge and over sides and upper edge. Set vent pipe flange in asphalt roofing cement. Embed shingles in asphalt roofing cement where they overlap flange. Apply bead of asphalt roofing cement at junction of vent pipe and vent flashing.
9. Run courses true to line with end joints properly placed. Leave shingles flat without wave and properly placed.
10. Hand-Sealing:
    a. Clip off and seal upper inside corner of each valley shingle to valley with asphalt roofing cement.
    b. If ambient temperature or exposure to sun will not be sufficient to secure adhesive strip to under-lying shingle within one week, hand seal shingles with asphalt roofing cement.

C. Shingles:
1. Before installing shingles, inspect underlayment and metal installation with Architect and Owner. Correct improperly installed and damaged material before beginning shingle installation.
2. Cut high wind shingles in accordance with Manufacturer's instructions, or use approved starter course. Nail to eave granule side up in continuous mastic bed with cut edge down-slope and edge overhanging eave 3/8 inch 9 mm so sealing tabs are at edge of eave. Install shingles with maximum exposure recommended by Manufacturer. Lay first course directly over starter strip with ends flush with starter strip at eaves and so joints in starter strip are offset 4 inches100 mm minimum from joints in first course.
3. Insure alignment by snapping chalk line at least each fifth course to control horizontal alignment.
4. Lay shingles so end joints are offset in accordance with Manufacturer's installation procedures.
5. Except over formed valley metal, use 5 nails in each shingle placed as required by Shingle Manufacturer. Place nail one inch from each end of strip and remainder evenly spaced between. Should any nail fail to penetrate sheathing by 1/4 inch 6 mm minimum, drive additional nail nearby. Adjust nail gun pressure for nailing flush and tight to deck without cutting shingle surface. Over valley metal, hand seal shingles. Do not drive nails through valley metal. Drive nails perpendicular to shingle surface so nail head is flat against shingle.
6. Run chalk line so valley will be 6 inches 150 mm wide at top and diverge 3/32 inch one mm per ft down to eaves. Neatly trim shingles to this line.
7. Install specified hip and ridge shingles in accordance with Shingle Manufacturer's instructions. Run ridge shingles as directed by Architect.
8. Vent pipe sleeve flange minimum width 6 inches 150 mm. Fit shingles under lower edge and over sides and upper edge. Set vent pipe flange in asphalt roofing cement. Embed shingles in asphalt roofing cement where they overlap flange. Apply bead of asphalt roofing cement at junction of vent pipe and vent flashing.
9. Run courses true to line with end joints properly placed. Leave shingles flat without wave and properly placed.
10. Hand-Sealing:
    a. Clip off and seal upper inside corner of each valley shingle to valley with asphalt roofing cement.
    b. If ambient temperature or exposure to sun will not be sufficient to secure adhesive strip to under-lying shingle within one week, hand seal shingles with asphalt roofing cement.

3.5 CLEANING

A. Clean shingles and building of soiling caused by this installation.

B. Leave metals clean and free of defects, stains, and damaged finish. Replace fascia metal that is scratched through finish to base metal.

C. Remove debris resulting from work of this Section from roof and site.

END OF SECTION

SECTION 07538

ELASTOMERIC ROOFING / EPDM

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Furnish and install mechanically fastened membrane roofing system as described in Contract Documents.

B. Products Installed But Not Supplied Under This Section
   1. Sheet metal work including caps, sleeves, umbrella hoods, pipe enclosure boxes, strapping, and scuppers.

C. Related Work
   1. Section 07628 - Sheet metal work

1.2 REFERENCES

A. American Society For Testing And Materials
   1. ASTM C 208-95, 'Standard Specification for Cellulosic Fiber Insulating Board.
   2. ASTM C 564-97, 'Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings'
   3. ASTM C 728-97, 'Standard Specification for Perlite Thermal Insulation Board'
   4. ASTM C 920-98, 'Standard Specification for Elastomeric Joint Sealants'
   5. ASTM C 1177-96, 'Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing'
   6. ASTM D 312-95a, 'Standard Specification for Asphalt Used in Roofing'

1.3 SUBMITTALS

A. Product Data - Manufacturer's literature or cut sheet for each element of system

B. Shop Drawings - Prepared by Membrane Manufacturer or its representative. Include outline of roof and roof size, location and type of penetrations, perimeter and penetration details, special details, and bill of materials.

C. Quality Assurance / Control
   1. Two copies of Manufacturer's published specification for Architect and maintain one at job-site.
   2. Roofing System Manufacturer' certification of Installer.

D. Closeout - Submit record shop drawings to Manufacturer, if requested. Record shop drawings shall be given shop drawing number by Membrane Manufacturer.

1.4 QUALITY ASSURANCE

A. Qualifications - Applicator shall be approved by Roofing System Manufacturer.

B. Regulatory Requirements
   1. System shall have Class 'A' rating from UL.
   2. Perimeter wood blocking, insulation, and sheet metal installation shall, as minimum, be in accordance with recommendations of FM Loss Prevention Data Sheet 1-49, June 1985.

C. Pre-Installation Conference - Schedule pre-installation conference after installation of roof

sheathing but prior to application of roofing system.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Make no deliveries to Project until installation is about to commence, or until approved storage area is provided. Deliver and maintain materials in Manufacturer's original, unopened containers or rolls, with labels intact and legible.

B. Store materials, except membranes, in dry place with temperatures between 60 and 80 deg F. Restore materials which are allowed to become colder than specified temperatures to proper temperature before using. Store materials on clean, raised platforms with weather protective covering, when stored outdoors.

C. Select and operate material handling equipment so as not to damage existing construction or new roofing system, or to overload structural system.

1.6 PROJECT CONDITIONS

A. Project Environmental Requirements
   1. Temperature ranges shall be within tolerances allowed for material being used.
   2. Follow Manufacturer's instructions for cold temperature installation. Follow specified precautions for storage of materials and expose only enough cement and adhesive to be used within four hour period.
   3. Roof surface shall be free of ponded water, ice, and snow.
   4. Do not expose membrane and accessories to constant temperature of 180 deg F or over.

1.7 WARRANTY

A. Membrane Manufacturer's written 20 year warranty covering EPDM membrane and flashings.

B. Contractor Workmanship Warranty:
   1. 5-years on DFCM contractor warranty form.

PART 2 PRODUCTS

2.1 COMPONENTS

A. Insulation / Recovery Board
   1. FM or UL approved.
   2. Top Layer - provide one of the following:
      a. 1/2 " inch thick minimum wood fiberboard meeting requirements of ASTM C 208.
      b. 1/2" inch thick minimum perlite meeting requirements of ASTM C 728.
      c. 1/2" inch thick minimum Dens-Deck Roof Board by G-P Gypsum.

B. Membrane
   1. EPDM, reinforced 0.060 inch thick by optimum width and length determined by job conditions.
   2. Approved Manufacturers -
      a. Carlisle Syntech Systems, Carlisle, PA (800) 479-6832 or (717) 245-7000 www.carlisle-syntec.com
      b. Firestone Building Products Co, Carmel, IN (800) 428-4442 or (317) 575-7000 www.firestonebpco.com
      c. Genflex by Gencorp Co, Maumee, OH (800) 443-4272 or (419) 891-1500

www.genflex.com
d. Versico, Akron, OH (800) 992-7663 or (330) 640-6700 www.versico.com
e. Johns Manville, Denver, CO (800) 654-3103 or (303) 978-2000 www.jm.com

C. Coating - Chlorosulfanated Polyethylene material furnished by Manufacturer.

D. Elastomeric Sealant
1. Meet requirements of one of following -
a. ASTM C 920, Type M, Grade NS, Use NT, Class 25
b. Fed Spec TT-S-001543A.

E. Vent Pipe Extensions
1. Pipe - Schedule 40 PVC pipe of equivalent diameter to vent pipe.
2. Connectors - Neoprene pipe sleeves with stainless steel drawbands, meeting requirements of ASTM C 564.

2.2 ACCESSORIES

A. Elastomeric Flashing
1. Elastomeric Sheet Flashing - Uncured EPDM, 0.060 inch thick.
2. Preformed Pipe Sleeves - Factory prefabricated, 0.060 inch thick.

B. Bonding (Flashing) Adhesive - As furnished by Membrane Manufacturer.

C. Splicing Adhesive - EPDM based contact cement furnished by Membrane Manufacturer.

D. Lap Sealant - EPDM based, trowel or gun consistancy as selected by Membrane Manufacturer.

E. Water Cut-Off Mastic - As furnished by Membrane Manufacturer.

F. Surface Cleaner - As furnished by Membrane Manufacturer.

G. Mastic - One component, low viscosity, self-wetting butyl mastic.

H. Nite Seal - Compatible with materials with which it is used, furnished by Membrane Manufacturer.

I. Pourable Sealer - Compatible with materials with which it is used, furnished by Membrane Manufacturer.

J. Rubber Nailing Strips (RNS) And Fasteners - Extruded nailing strips and fasteners furnished by Membrane Manufacturer.

K. Separation Sheets
1. Aluminum foil laminated between two layers of kraft paper with non-asphaltic adhesive, for use at membrane splices and dry applied cavity fill locations.
2. Acceptable Manufacturers -
a. Poly-Foil Barrier 718200 by Fortifiber Corp, Fernley, NV (800) 743-4777 or (702) 575-5557 www.fortifiber.com
b. Equal as approved by Architect before installation and acceptable to Membrane Manufacturer. See Section 01600.

L. Coatings - Acryli Top PC-100 top coating furnished by Membrane Manufacturer.

PART 3 EXECUTION

3.1 PREPARATION

A. Protection
   1. Prevent interior leakage, materials falling into interior, and other such occurrences.
   2. Install temporary water cut-offs at completion of each day's work and completely remove upon resumption of work.
   3. Provide temporary walkways and work platforms as necessary to complete work under this Section with no damage to existing surfaces, surfaces exposed during work, and to new materials applied.
   4. Coordinate application of membrane to provide protection of underlying materials from wetting or other damage by the elements on a continuous basis.
   5. Sheet metal sleeves, caps, and enclosures shall be completely installed on daily basis.

B. Surface Preparation
   1. Surfaces to receive new materials shall be free of dirt, debris, loose materials and free moisture. Mechanically scrape exposed surfaces, if necessary to remove projections.
   2. Verify that surfaces receiving new materials have no defects or errors which would result in poor application or cause latent defects in workmanship.
   3. Inspect anchoring of wood members for conformance to specified requirements. Upgrade nonconforming fasteners to meet specified requirements.
   4. Reset or replace existing fasteners that are loose, deformed, damaged, or corroded.
   5. Fill insulation joints wider than 1/4 inch with insulation cut to fit.

3.2 INSTALLATION

A. Installation shall be in conformance with latest edition of Manufacturer's specification except where Contract Documents are more restrictive.

B. Wood Blocking And Nailers
   1. Install blocking, cants, nailers, and sheathing in straight lines and level planes at proper elevation for installation of roofing system and in accordance with recommendations of FM Loss Prevention Data Sheet 1-49, June 1986 and Manufacturer's requirements.
      a. Do not use warped wood members unless they can be fastened adequately to permanently hold them in their required alignment.
      b. Top surface of horizontal blocking shall match elevation of surface of roof insulation.
   2. Lumber / Plywood Connections to Lumber -
      a. Nail spacing shall be 12 inches on center maximum and staggered across face of piece. Locate nails within 3 inches of each end of piece. Roof edge blocking 96 inches each way outside from corners shall be nailed at 6 inches on center maximum.
      b. Drive nail heads flush with wood surface. Penetration into connecting piece shall be 1-1/4 inch minimum.
      c. Installed withdrawal resistance shall be 100 lbs per nail minimum.
   3. Lumber / Plywood Anchors to Masonry or Concrete -
      a. Space anchors as shown on Drawings or 36 inches on center maximum when not shown. Stagger anchors if members are more than 5 inches wide. Roof edge blocking 96 inches each way from outside corners shall be nailed at 18 inches on center maximum.
      b. Countersink head of anchors to be flush with surface.
      c. Withdrawal resistance shall be 300 lbs per anchor minimum or number of anchors increased to equal that specified. Minimum penetration into masonry shall be 1-1/2 inches.

C. Insulation
   1. Mechanically attach one layer of perlite board to deck with four mechanical fasteners per board and tape joints. Provide special tapered insulation pieces at roof drains and elsewhere as shown on Drawings.
   2. Moisture content of insulation shall not exceet 4 percent.

D. Membrane Placing
   1. Position membrane over substrate without stretching.
   2. Allow membrane to relax approximately 1/2 hour prior to splicing and flashing.
   3. Fold sheet back so one half of underside of sheet is exposed. Sheet fold shall be smooth, no wrinkles or buckles.
   4. Install separation sheet over insulation which needs protection from solvents.
   5. Mechanically fasten sheet with batten bars and fasteners approved by Membrane Manufacturer.

E. Membrane Splicing
   1. Fold top sheet back about 12 inches. Clean both mating surfaces at splice areas using clean rags with splice wash. Surface should be solid black in color.
   2. Apply splicing cement to both surfaces using a using a 3 or 4 inch by 1/2 inch thick paint brush or a 4 inch medium nap plastic core paint roller at rate of approximately 175 lineal feet of 3 inch splice area per gallon.
      a. Brush apply smoothly or roll apply splicing cement, to obtain 100 percent coverage.
      b. Do not allow glob or puddle.
      c. Allow cement to dry until tacky but not string or stick to a dry finger touch.
   3. Roll top sheet toward splice area, until the cemented area is nearly touching cement on bottom sheet along entire length of splice. Allow sheet to fall freely into place, avoiding stretching and wrinkling.
   4. Roll splice with 2 inch wide steel roller, using positive pressure, toward the outer edge of splice.
   5. Clean splice edge, extending one inch minimum onto top and bottom membranes with splice wash.
   6. Apply bead of lap sealant completely covering splice edge. Feather lap sealant with specially preformed putty knife or trowel. Complete lap sealant application of splices by end of each working day.

F. Perimeter Nailing
   1. Install nailers at perimeter of each roof level, curb flashing, skylight, expansion joint, and similar penetration as follows -
      a. Mechanically attach membrane to wood nailers using Manufacturer's recommended insulation fasteners applied through rubber nailing strips.
      b. Space fasteners at 12 inches on center maximum, starting one inch from ends with fasteners driven flush with rubber nailing strips.
      c. Cut of ends at a bevel from the fastener head.
      d. Where nailing strips would interfere with water flow, cut off and bevel to allow a 6 inch open space between fasteners.
      e. Seal over rubber nailing strip with 6 inch wide flashing using cement and lap sealant on edges.

G. Flashing
   1. Complete splice between flashing and main roof sheet before bonding flashing to vertical surface. Splice shall extend at least 3 inches beyond fasteners which attach membrane to horizontal surface.
      a. Clean surface of EPDM in splice area with surface cleaner, using clean rags.
      b. Apply bonding adhesive to both flashing and surface to which it is being bonded at rate covering approximately 60 sq ft of finished surface.
      c. After bonding adhesive has dried so it does not string or stick to dry finger, roll flashing into adhesive. Ensure that flashing does not bridge where there are changes of direction (for example, where parapet meets roof deck).
      d. Nail installed flashing at top of flashing every 12 inches on center maximum under metal counterflashing or cap.
   2. Flash penetrants passing through membrane.
      a. Flash pipe with molded pipe flashings where installation is possible. Install vent stack and pipe extensions where necessary to achieve 8 inch minimum flashing height.

b. Where molded pipe flashing cannot be installed, use field fabricated pipe seal.

3. Seal clusters of pipes and unusual shaped penetrations with 2 inch minimum pourable sealer. Use pitch pocket type seal as shown on Membrane Manufacturer's standard details.
4. Roof Drains -
   a. Solvent clean and wire brush drain bowl and clamping ring to remove bituminous material.
   b. Clean bottom surface of EPDM in clamping area with surface cleaner using clean rags.
   c. Apply membrane to drain using full application of mastic and install clamping ring.
   d. Set and secure scupper flanges through a continuous bead of mastic. Provide flashing over scupper flanges.

H. Daily Seal
1. Exercise care to ensure that water does not flow beneath completed sections of roof. Temporarily seal loose edge of membrane daily and when weather is threatening.
   a. Mix two components thoroughly according to instructions on label.
   b. Apply at rate of 100 lineal ft per gallon to smooth surfaces, and 12 inches from edge of membrane onto exposed substrate. If necessary, use trowel to spread material in order to achieve complete seal.
   c. After embedding membrane, check for continuous contact. Weight edge to provide continuous pressure over length of cut-off.
   d. Pull sheet free before continuing installation.

3.3 FIELD QUALITY CONTROL

A. Site Tests
1. Withdrawal tests of fasteners and nailers may be required.
2. Samples of flashing will be taken to determine degree to which it has cured prior to installation.
3. Sample of completed splice may be required at location selected by Architect. Patching of test opening shall be at no additional cost to Owner and use specified splicing methods.
4. Field tests may be performed by Architect to evaluate moisture content of installed materials.
5. Application of roof system will be checked by Architect.

B. Manufacturer's Field Service - Upon completion of installation, representative of Membrane Manufacturer shall make inspection to ensure that system was installed according to Manufacturer's published specifications and details. Make no deviation from Manufacturer's specifications without prior written approval by Manufacturer.

3.4 CLEANING

A. Remove roofing materials from surfaces not specified to receive these materials such as walls, walkways, metal flashings, etc.

B. Repair existing grass areas, plantings, and other site improvements that are damaged or altered during performance of roofing work.

C. Remove scraps, equipment, debris, and foreign materials from roof and grounds at completion of the Work.

D. Check roof drains to determine if drain is plugged, or if drain bowl, clamping ring, dome, etc, are damaged.

END OF SECTION

SECTION 07624

FLASHING AND COUNTERFLASHING / Aluminum

PART 1 - GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:
   1. Furnish and install aluminum flashing, step flashing, counterflashing, and hold-down clips as described in Contract Documents.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Sheet Aluminum:
   1. 3105-H25 alloy.
      a. Flashing And Counterflashing: 0.040 inch 1.02 mm thick minimum.
      b. Hold-Down Clips: 0.050 inch 1.29 mm thick minimum.
   2. Finish:
      a. Unexposed: Mill finish.
      b. Exposed To View:
         1) Face coating of polyvinyledene Fluoride (PVF_2) Resin-base finish (Kynar 500 or Hylar 5000) containing 70 percent minimum PVF_2 in resin portion of formula. Thermo-cured two coat system consisting of corrosion inhibiting epoxy primer and top coat factory applied over properly pre-treated metal.
         2) Color as selected by Architect from Manufacturer's standard colors.
   3. Acceptable Manufacturers:
      a. Copper Sales Inc, Minneapolis, MN (800) 426-7737 or (612) 576-9595. www.unaclad.com
      b. Englert Inc, Perth Amboy, NJ (800) 610-1975 or (732) 826-8614. www.englertinc.com
      c. Fabral, Jackson, GA (800) 884-4484. www.fabral.com
      d. Integris Metals, Minneapolis, MN (800) 328-7800 or (763) 717-9000. www.integrismetals.com
      e. Metal Sales Manufacturing Corp, Sellersburg, IN (800) 999-7777 or (812) 246-1866. www.mtlsales.com
      f. Petersen Aluminum Corp, Elk Grove, IL (800) 323-1960 or (847) 228-7150. www.pac-clad.com
      g. Reynolds Metals Company, Richmond, VA (800) 841-7774 or (804) 281-2636. www.rmc.com
      h. Equal as approved by Architect before installation. See Section 01600.

B. Screws, Bolts, Nails, And Accessory Fasteners: Of strength and type consistent with function.

2.2 FABRICATION

A. Form accurately to details.

B. Profiles, bends, and intersections shall be even and true to line.

C. Fold exposed edges 1/2 inch 13 mm to provide stiffness.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Slope to provide positive drainage.

B. Provide sufficient hold down clips to insure true alignment and security against wind.

C. Install with 4 inch 100 mm minimum overlap.

D. Bed overlap joints in appropriate sealant specified in Section 07920.

E. Form and lap step flashings.

F. Allow sufficient tolerance for expansion and contraction.

G. Insulate work to prevent electrolytic action.

3.2 CLEANING

A. Leave metals clean and free of defects, stains, and damaged finish.

END OF SECTION

SECTION 07629

GUTTERS AND DOWNSPOUTS

PART 1 - GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:
   1. Furnish and install gutters and downspouts as described in Contract Documents.

B. Related Sections:
   1. Section 07920: Quality of sealants for joints.

1.2 REFERENCES

A. Sheet Metal & Air Conditioning Contractors National Association, Inc:
   1. SMACNA Architectural Sheet Metal Manual, 5th edition 1993.

1.3 SUBMITTALS

A. Shop Drawings: Show gutter cross-section, mounting method, gauge of metal, expansion joint design and locations, and downspout locations minimum.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Aluminum:
   1. Downspouts: Rectangular 0.032 inch 0.813 mm minimum aluminum including necessary elbows.
   2. Gutters: 0.050 inch 0.127 mm minimum aluminum.
   3. Brackets: 0.060 inch 0.152 mm minimum aluminum.
   4. Finish:
      a. Unexposed: Mill finish.
      b. Exposed To View:
         1) Face coating of polyvinyledene Fluoride (PVF_2) Resin-base finish (Kynar 500 or Hylar 5000) containing 70 percent minimum PVF_2 in resin portion of formula. Thermo-cured two coat system consisting of corrosion inhibiting epoxy primer and top coat factory applied over properly pre-treated metal.
         2) Color as selected by Architect from Manufacturer's standard colors.

   5. Acceptable Manufacturers:
      a. Copper Sales Inc, Minneapolis, MN (800) 426-7737 or (612) 576-9595. www.unaclad.com
      b. Englert Inc, Perth Amboy, NJ (800) 610-1975 or (732) 826-8614. www.englertinc.com
      c. Fabral, Jackson, GA (800) 884-4484. www.fabral.com
      d. Integris Metals, Minneapolis, MN (800) 328-7800 or (763) 717-9000. www.integrismetals.com
      e. Metal Sales Manufacturing Corp, Sellersburg, IN (800) 999-7777 or (812) 246-1866. www.mtlsales.com
      f. Petersen Aluminum Corp, Elk Grove, IL (800) 323-1960 or (847) 228-7150. www.pac-clad.com
      g. Reynolds Metals Company, Richmond, VA (800) 841-7774 or (804) 281-2636. www.rmc.com

h. Equal as approved by Architect before installation. See Section 01600.

B. Screws, Bolts, Nails, And Accessory Fasteners: Non-corrosive and of strength and type consistent with function.

C. Downspouts, gutters, brackets, fasteners, and accessories shall be compatible material.

2.2 FABRICATION

A. Fabricate in accordance with SMACNA Manual recommendations, where applicable.
1. Cross-sectional configuration of gutter shall be Style A, Page 1.11 of SMACNA Manual.

B. Form accurately to details.

C. Profiles, bends, and intersections shall be even and true to line.

2.3 FINISHES

A. Metal exposed to view shall have face coating of polyvinyledene Fluoride (PVF_2) Resin-base finish (Kynar 500 or Hylar 5000) containing 70 percent minimum PVF_2 in resin portion of formula. Thermo-cured two coat system consisting of corrosion inhibiting epoxy primer and top coat factory applied over properly pre-treated metal. Reverse side coating shall be thermo-cured system consisting of corrosion inhibiting epoxy primer applied over properly pre-treated metal.

B. Color as selected by Architect from Manufacturer's standard colors.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before starting work, verify governing dimensions at building. Inspect for conditions that would prevent installation of specified system. Do not install over improper conditions.

3.2 INSTALLATION

A. Insulate work from fascia as necessary to prevent electrolytic action.

B. Allow no more than 40 feet between downspouts. Lap joints in downspouts 1-1/2 inches 38 mm minimum in direction of water flow.

C. Furnish and install outlet tubes and gutter ends where required. Furnish and install expansion joints in runs exceeding 50 feet 15 meters and in runs that are restrained at both ends. Lap other joints in gutter one inch minimum, apply sealant in lap, and rivet 2 inches 50 mm on center maximum.

3.3 FIELD QUALITY CONTROL

A. At completion of this work, block downspouts and flood gutters. Notify Architect two working days before testing. Repair leaks and adjust for proper drainage.

3.4 CLEANING

A. Leave metals clean and free of defects, stains, and damaged finish.

END OF SECTION

SECTION 07631

ROOF FLASHING / Shingles

PART 1 - GENERAL

1.1 SUMMARY

A. Products Supplied But Not Installed Under This Section:
   1. Formed Valley Metal.
   2. Pipe flashing for vents and flues.

B. Related Sections:
   1. Section 07312: Installation.
   2. Section 07920: Quality of sealants.

1.2 REFERENCES

A. American Society For Testing And Materials:
   1. ASTM A 653-01, 'Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.'

PART 2 - PRODUCTS

2.1 MATERIALS

A. Formed Valley Metal And Drip Edge:
   1. Metal:
      a. Aluminum: 0.032 inch 0.81 mm thick minimum.
      b. Steel: Minimum 24 ga 0.635 mm, hot-dipped galvanized to meet requirements of ASTM A 653, 1.25 oz/sq ft.
   2. Finishes:
      a. Face coating polyvinyledene Fluoride (PVF_2) Resin-base finish (Kynar 500 or Hylar 5000) for coil coating components containing 70 percent minimum PVF_2 in resin portion of formula. Thermo-cured two coat system consisting of corrosion inhibiting epoxy primer and top coat factory applied over properly pre-treated metal.
      b. Reverse side coating of steel flashings to be thermo-cured system consisting of corrosion inhibiting epoxy primer applied over properly pre-treated metal.
      c. Color as selected by Architect from Manufacturer's standard colors.
   3. Acceptable Manufacturers:
      a. Copper Sales Inc, Minneapolis, MN (800) 426-7737 or (612) 576-9595. www.unaclad.com
      b. Englert Inc, Perth Amboy, NJ (800) 610-1975 or (732) 826-8614. www.englertinc.com
      c. Fabral, Jackson, GA (800) 884-4484. www.fabral.com
      d. Integris Metals, Minneapolis, MN (800) 328-7800 or (763) 717-9000. www.integrismetals.com
      e. Metal Sales Manufacturing Corp, Sellersburg, IN (800) 999-7777 or (812) 246-1866. www.mtlsales.com
      f. Petersen Aluminum Corp, Elk Grove, IL (800) 323-1960 or (847) 228-7150. www.pac-clad.com
      g. Reynolds Metals Company, Richmond, VA (800) 841-7774 or (804) 281-2636. www.rmc.com
      h. Equal as approved by Architect before installation. See Section 01600.

B. Pipe Flashing For Plumbing Vent Lines:

1. 16 oz sheet copper or 4 lb per sq ft lead flashing.
2. Flashing base shall be at least 24 inches 600 mm square.

C. Roof Jacks For Flues: Factory-made galvanized steel.

2.2 FABRICATION

A. Form accurately to details. Provide formed valley metal in 10 foot 3 meter lengths with one inch 25 mm 'V' crimp and break in center to match roof slopes.

B. Profiles, bends, and intersections shall be even and true to line.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Interface With Other Work: Coordinate with pipe installers for proper size of roof jacks and pipe flashing.

B. Pipe Flashing For Plumbing Vent Lines.
1. Copper: Fit snugly around pipes. Calk between copper flashing and pipe with specified sealant.
2. Lead: Fit around pipes and turn down into pipe 1/2 inch 13 mm with turned edge hammered against pipe wall.

END OF SECTION

SECTION 07920

JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:
   1. Furnish and install sealants not specified to be furnished and installed under other Sections.
   2. Quality of sealants to be used on Project not specified elsewhere, including submittal, material, and installation requirements.

B. Related Sections:
   1. Removing existing sealants specified in Sections where work required.
   2. Furnishing and installing of sealants is specified in Sections specifying work to receive new sealants.
   3. Section 09822: Acoustical sealants.

1.2 SUBMITTALS

A. Product Data:
   1. Manufacturer's literature and installation recommendations for each Product.
   2. Schedule showing joints requiring sealants. Show also backing and primer to be used.

B. Quality Assurance / Control: Certificate from Manufacturer indicating date of manufacture.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Handle to prevent inclusion of foreign matter, damage by water, or breakage.

B. Deliver and keep in original containers until ready for use.

C. Do not use damaged or deteriorated materials.

D. Store in a cool place, but never under 40 deg F 4 deg C.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Sealants:
   1. Sealants provided shall meet Manufacturer's shelf-life requirements.
   2. Exterior Building Elements:
      a. Joints and cracks around windows.
      b. Aluminum entrance perimeters and thresholds.
      c. Door frames.
      d. Columns.
      e. Louvers.
      f. Wall penetrations.
      g. Connections.
      h. Parapet caps.

i. Other joints necessary to seal off building from outside air and moisture.
j. Approved Products:
1) Dow Corning:
a) Primer: 1200.
b) Sealant: 791.
2) General Electric:
a) Primer: SS4044.
b) Sealant: Silpruf SCS 2000.
3) Tremco:
a) Primer:
(1) Metal: No. 20.
(2) Other: No. 23.
b) Sealant: Spectrum 1.

3. Exterior Sheet Metal And Miscellaneous:
a. Penetrations in soffits and fascias.
b. Roof vents and flues.
c. Flashings.
d. Gutters.
e. Approved Products:
1) 791 or 790 by Dow Corning.
2) Sikaflex 15LM by Sika Corp.
3) Tremsil 600 by Tremco.

4. Exterior Concrete:
a. Approved Products:
1) Joints between building foundations and exterior site concrete:
a) Dow Corning:
(1) Primer: 1200.
(2) Sealant: 790.
b) General Electric:
(1) Primer: SS4044.
(2) Sealant: Silpruf SCS 2000.
c) Tremco: Vulchem 45.
2) Expansion joints in retaining walls:
a) Dow Corning:
(1) Primer: 1200.
(2) Sealant: 790.
b) General Electric:
(1) Primer: SS4044.
(2) Sealant: Silpruf SCS 2000.
3) Expansion joints in Portland cement concrete driveways and parking lots:
a) Dow Corning:
(1) Primer: 1200.
(2) Sealant: NS. SL may be used on non-sloping areas.
b) Tremco: Vulkem 45.

5. Interior:
a. Inside jambs and heads of exterior door frames.
b. Inside perimeters of windows.
c. Miscellaneous gaps between substrates.
d. Approved Products:
1) Trademate Paintable by Dow Corning.
2) Acrylic Latex 834 by Tremco.

6. Interior Joints Formed By:
a. Countertops and backsplash to wall.
b. Sinks and lavatories to countertops.
c. Termination joints in showers and fonts.
d. Approved Products:
1) Trademate Tile & Ceramic Sealant by Dow Corning.
2) Acrylseal by General Electric.
3) Tremsil 200 by Tremco.

7. Color: As selected by Architect from Manufacturer's standard colors.

B. Backing: Flexible closed cell, non-gassing polyurethane or polyolefin rod or bond breaker tape as recommended by Sealant Manufacturer for joints being sealed.

2.2 MANUFACTURERS

A. Contact Information:
1. Dow Corning Corp, Midland, MI (800) 248-2481 or (989) 496-6000. www.dowcorning.com
2. G E Silicone Products, Waterford, NY (800) 255-8886 or (518) 237-3330. www.ge.com/silicones/sealants
3. Sika Corporation, Lyndhurst, NJ (800) 933-7452 or (201) 933-9379. www.sika.com
4. Tremco, Cleveland, OH (800) 321-7906 or (216) 292-5000. www.tremcosealants.com

PART 3 - EXECUTION

3.1 PREPARATION

A. Remove existing sealants where specified. Surfaces shall be clean, dry, and free of dust, oil, grease, dew, or frost.

B. Apply primer.

C. Joint Backing:
1. Rod for open joints shall be at least 1-1/2 times width of open joint and of thickness to give solid backing. Backing shall fill up joint so depth of sealant bite is no more than 3/8 inch 10 mm deep.
2. Apply bond-breaker tape in shallow joints as recommended by Sealant Manufacturer.

3.2 APPLICATION

A. Apply sealant with hand-calking gun with nozzle of proper size to fit joints. Use sufficient pressure to insure full contact to both sides of joint to full depth of joint. Apply sealants in vertical joints from bottom to top.

B. Tool joints immediately after application of sealant if required to achieve full bedding to substrate or to achieve smooth sealant surface. Tool joints in opposite direction from application direction, i.e., in vertical joints, from the top down. Do not 'wet tool' sealants.

C. Depth of sealant bite shall be 1/4 inch 6 mm minimum and 1/2 inch 13 mm maximum, but never more than one half or less than one fourth joint width.

D. Do not apply calking at temperatures below 40 deg F 4 deg C.

E. Calk gaps between painted or coated substrates and unfinished or pre-finished substrates. Calk gaps larger than 3/16 inch 9 mm between painted or coated substrates.

3.3 CLEANING

A. Clean adjacent materials, which have been soiled, immediately (before setting) as recommended by Manufacturer.

END OF SECTION

B L A N K P A G E

SECTION 15101

GENERAL PIPING REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. General piping material requirements and installation procedures applicable to all piping systems.

1.2 DELIVERY, STORAGE, AND HANDLING

A. Provide temporary protective coating on cast iron and steel valves.

B. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

PART 2 PRODUCTS

2.1 COMPONENTS

A. Pipe And Pipe Fittings - Use domestic made pipe and pipe fittings on Project. Weld-O-Let and Screw-O-Let fittings are acceptable.

B. Sleeves
   1. In Framing - Standard weight galvanized iron pipe, Schedule 40 PVC, or 14 ga galvanized sheet metal two sizes larger than bare pipe or insulation on insulated pipe.
   2. In Concrete - Sleeves through outside walls, interior shear walls, and footings shall be schedule 80 black steel pipe with welded plate.

2.2 MANUFACTURED UNITS

A. Valves - Valves of same type shall be of same manufacturer.

B. Pipe Hangers
   1. Adjustable, malleable iron clevis type, swivel loop type, or swivel split ring type of a diameter adequate to support pipe size.
   2. Approved Manufacturers -
      a. Globe Strut by Globe Pipe Hanger
      b. B-Line
      c. Grinnell
      d. Michigan Hanger
      e. Superstrut

C. Di-Electric Unions
   1. Suitable for at least 175 PSIG WP at 250 deg F.
   2. Approved Manufacturers -
      a. EPCO
      b. Victaulic
      c. Watts Regulator

2.2 MANUFACTURERS

A. B-Line Systems, Highland, IL (800) 280-7994 or (618) 654-2184 www.bline.com
B. EPCO Products Inc, Fort Wayne, IN (800) 879-3726 or (219) 747-8888 www.epcoproducts.com
C. Globe Pipe Hanger Products Inc, Cleveland, OH (800) 338-3555 or (216) 362-6300

D. Grinnell Corp, Exeter, NH (603) 778-9200 www.grinnell.com
E. Michigan Hanger Company, Niles, OH (800) 333-0852 or (330) 544-4700
F. Superstrut by Thomas & Betts, Memphis, TN (800) 888-0211 or (901) 682-7766 www.tnb.com
G. Victaulic Company of America, Easton, PA (610) 559-3300 www.victualic.com
H. Watts Regulator Co, North Andover, MA (978) 688-1811 www.wattsreg.com

PART 3 EXECUTION

3.1 INSTALLATION

A. Interface With Other Work
   1. Furnish sleeves, inserts, supports, and equipment that are to be installed by others in sufficient time to be incorporated into construction as work proceeds. Locate these items and see they are properly installed.

B. Furnish and install complete system of piping, valved as indicated or as necessary to completely control entire apparatus.
   1. Pipe drawings are diagrammatic and indicate general location and connections. Piping may have to be offset, lowered, or raised as required or directed at site. This does not relieve this Division from responsibility for proper erection of systems of piping in every respect.
   2. Arrange piping to not interfere with removal of other equipment, ducts, or devices, or block access to doors, windows, or access openings.
      a. Arrange so as to facilitate removal of tube bundles.
      b. Provide accessible flanges or ground joint unions, as applicable for type of piping specified, at connections to equipment and on bypasses.
         1) Make connections of dissimilar metals with di-electric unions.
         2) Install valves and unions ahead of traps and strainers. Provide unions on both sides of traps.
      c. Do not use reducing bushings, street elbows, bull head tees, close nipples, or running couplings.
      d. Install piping systems so they may be easily drained. Provide drain valves at low points and manual air vents at high points in hot water heating and cooling water piping.
      e. Install piping to insure noiseless circulation.
      f. Place valves and specialties to permit easy operation and access. Valves shall be regulated, packed, and glands adjusted at completion of work before final acceptance.
   3. Do not install piping in shear walls.

C. Properly support piping and make adequate provisions for expansion, contraction, slope, and anchorage.
   1. Cut piping accurately for fabrication to measurements established at site. Remove burr and cutting slag from pipes.
   2. Work piping into place without springing or forcing. Make piping connections to pumps and other equipment without strain at piping connection. Remove bolts in flanged connections or disconnect piping to demonstrate that piping has been so connected, if requested.
   3. Make changes in direction with proper fittings.
   4. Except for underground pipe, suspend piping from roof trusses or clamp to vertical walls using Unistrut and clamps. Do not hang pipe from other pipe, equipment, or ductwork. Laying of piping on any building element is not allowed.
   5. Supports For Horizontal Piping -
      a. Support metal piping at 96 inches on center maximum for pipe 1-1/4 inches or larger and 72 inches on center maximum for pipe 1-1/8 inch or less.
      b. Support thermoplastic pipe at 48 inches on center maximum.
      c. Provide support at each elbow. Install additional support as required.
   6. Supports for Vertical Piping -
      a. Place riser clamps at each floor or ceiling level.
      b. Securely support clamps by structural members which in turn are supported directly from building structure.
      c. Provide clamps as necessary to brace pipe to wall.

7. Insulate hangers for copper pipe from piping by means of at least two layers of Scotch 33 plastic tape.
8. Expansion of Thermoplastic Pipe -
   a. Provide for expansion in every 30 feet of straight run.
   b. Provide 12 inch offset below roof line in each vent line penetrating roof.

D. Provide spring clamp plates (escutcheons) where pipes run through walls, floors, or ceilings and are exposed in finished locations of building. Plates shall be chrome plated heavy brass of plain pattern and shall be set tight on pipe and to building surface.

3.2 FIELD QUALITY CONTROL

A. Site Tests
   1. Perform tests on mechanical piping systems. Furnish devices required for testing purposes.
   2. Replace material or workmanship proven defective with sound material at no additional cost to Owner. Repeat tests on new material, if requested.

3.3 CLEANING

A. Remove dirt, grease, and other foreign matter from each length of piping before installation.
   1. After each section of piping used for movement of water or steam is installed, flush with clean water, except where specified otherwise.
   2. Arrange temporary flushing connections for each section of piping and arrange for flushing total piping system.
   3. Provide temporary cross connections and water supply for flushing and drainage and remove after completion of work.

3.4 PROTECTION

A. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system. Cap or plug open ends of pipes and equipment to keep dirt and other foreign materials out of system. Do not use plugs of rags, wool, cotton waste, or similar materials.

END OF SECTION

SECTION 15150

WASTE AND VENT PIPING

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Furnish and install secondary roof drains and piping systems.
   2. Perform cutting and patching required by work of this Section.

B. Related Sections
   1.
   2. Section 07920 - Joint Sealants
   3. Section 15101 - General Piping Requirements

1.2 REFERENCES

A. American Society For Testing And Materials
   1. ASTM A 74-98, 'Standard Specification for Cast Iron Soil Pipe and Fittings'
   2. ASTM C 564-97, 'Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings'

1.3 QUALITY ASSURANCE

A. Pre-Installation Conference - Participate in pre-installation conference prior to installation.

PART 2 PRODUCTS

2.1 COMPONENTS

A. Roof Drains
   1. J. R. Smith: 1080, overflow drain with 2” exterior water dam.
   2. Zurn: Z-189, overflow drain with 2” exterior water dam.

B. Downspout Nozzle
   1. J. R. Smith: 1770
   2. Zurn: Z-199

C. Above Grade Piping And Vent Lines
   1. Approved Types -
      a. Service weight, single-hub or no-hub type cast iron soil pipe meeting requirements of ASTM A 74.
      b. Vent lines 2-1/2 inches or smaller may be Schedule 40 galvanized steel
   2. Joint Material -
      a. Single-Hub - Rubber gaskets meeting requirements of ASTM C 564.
      b. No-Hub Pipe - Neoprene gaskets with stainless steel cinch bands.

D. Fittings
   1. Cast Iron Pipe - Hub and spigot, except fittings for no-hub pipe shall be no-hub, and meet requirements of ASTM A 74.
      a. Joint Material - Rubber gaskets meeting requirements of ASTM C 564.
   2. Galvanized Pipe - Screwed Durham tarred drainage type.

PART 3 EXECUTION

3.1 INSTALLATION

A. Metal Pipe And Fittings
   1. Provide depression under bell of each joint to maintain even bearing of sewer pipe.
   2. Connect to street main as required by local authorities.
   3. Use jacks to make-up gasketed joints.
   4. Do not calk threaded work.
   5. Use torque wrench to obtain proper tension in cinch bands when using hubless cast iron pipe. Butt ends of pipe against centering flange of coupling.

B. Each fixture and appliance discharging water into sanitary sewer or building sewer lines shall have seal trap in connection with complete venting system so gasses pass freely to atmosphere with no pressure or syphon condition on water seal.

C. Furnish and install sealant at penetrations of walls as required under Sections 07920.

3.2 FIELD QUALITY CONTROL

A. Site Tests
   1. Conduct tests for leaks and defective work. Notify Architect prior to testing.
   2. Metal Pipe System - After backfilling and compacting of trenches is complete but before placing floor slab, fill waste and vent system to roof level with water, 10 feet minimum, and show no leaks for two hours. Uncover pipe and correct leaks and defective work. Re-backfill and compact and re-test.

END OF SECTION